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ZANZIBAR PROTECTORATE.

DUPLICATE

ANNUAL REPORT

ON THE

AGRICULTURAL DEPARTMENT

FOR THE YEAR

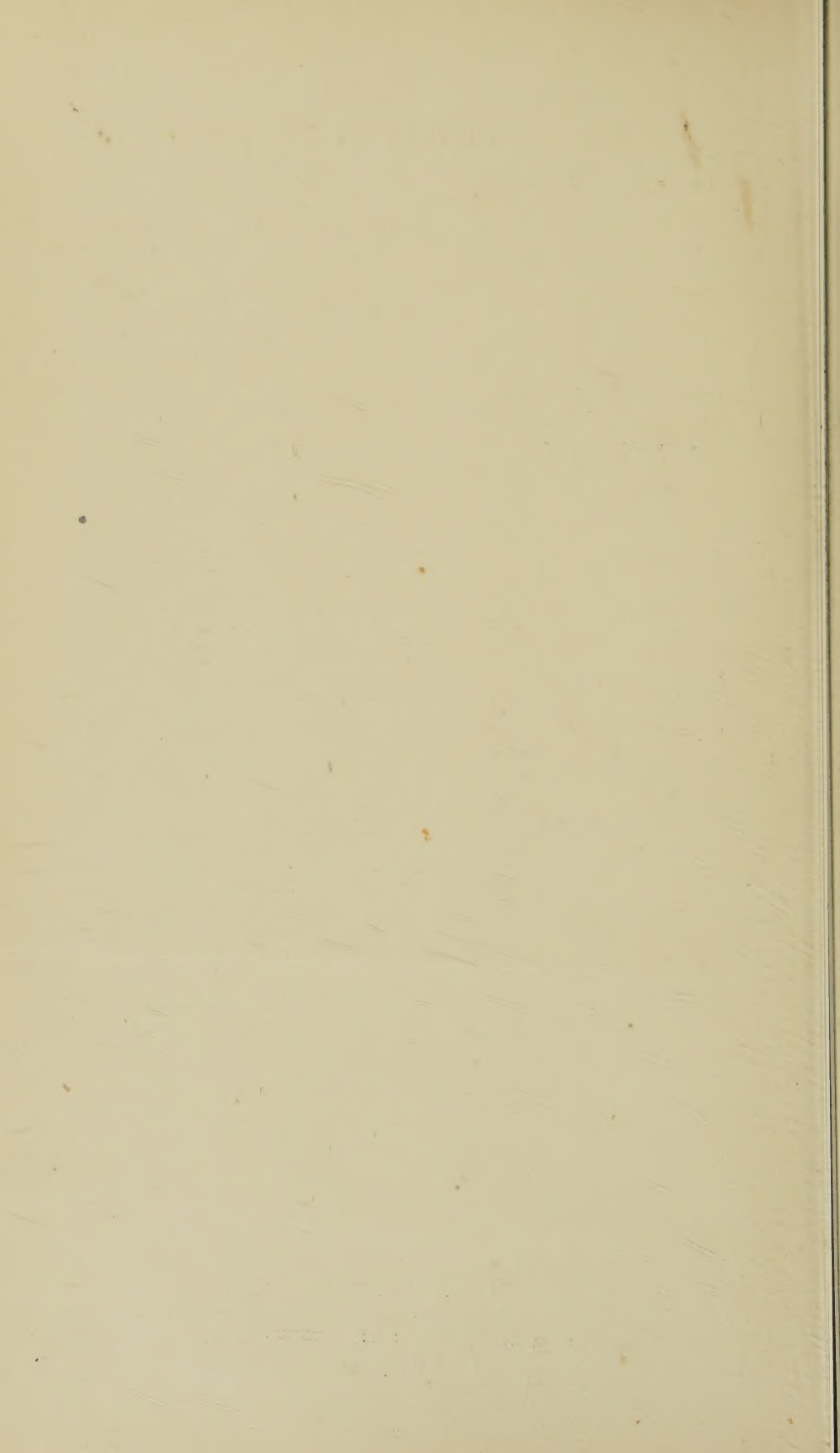
1920.



ZANZIBAR.

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1922.



ZANZIBAR PROTECTORATE.

REPORT ON THE AGRICULTURAL DEPARTMENT, FOR THE YEAR 1920.

SECTION 1.—INTRODUCTION AND FINANCE.

1. *Introduction.*—In presenting the Report of his Department the Director of Agriculture separates the two distinct classes of work undertaken, namely the management of the Government plantations—over 80 in number—with an area of 30,000 acres: and the general work of an Agricultural Department in a purely Agricultural country.

2. *Staff.*—The Director of Agriculture returned from leave in January.

Mr. Backlog, Inspector of Plantations, failed to pass his Swahili examination, and his appointment was not confirmed at the end of his probationary period. His work in the Department terminated therefore on the 24th May.

Mr. Barrington Simeon, Inspector of Plantations, also failed to pass in his Swahili examination: and his appointment was also not confirmed. A Medical Board reported him as unfit for work in the Protectorate: and his services terminated, when he went on leave on the 15th November.

Captain Welstead joined the staff, as Inspector of Plantations, in the month of August.

3. *Finance.*—

TABLE I.

REVENUE.

Sub-head.		Estimate Rs.	Actual Rs.
Cloves	...	225,000	95,524
Coconuts	...	130,000	157,085
Miscellaneous	...	5,000	3,490
Rent of leased plantations	...	4,550	1,671
Lands (Ground-rents)	...	3,000	4,739
Land sales	...	...	534
Total	...	367,550	263,043

TABLE II.

EXPENDITURE.

Sub-head.	Direction and Office.		Government Plantations.	
	Estimate	Actual	Estimate	Actual.
	Rs.	Rs.	Rs.	Rs.
Personal Emoluments	... 58,942	53,029	53,539	51,727
Cultivation, bearing trees	... ..	...	110,000	109,641*
Cultivation, young trees	... ..	...	15,000	14,997*
Clove-harvest	... ..	...	55,000	35,522
Coconut gathering	... ..	...	800	50
Travelling Expenses	... 5,500	5,497	2,000	1,984
Contingencies	... 2,000	1,974	2,250	2,241
Maintenance of plantation houses	... ..	...	10,000	9,276
Nurseries (public)	... 2,000	2,046	...	...
General clove-harvest	... 15,000	12,984	...	...
Special expenditure	... 27,750	53,123	750	1,027
Re-planting of clove trees in Pemba	45,000	579	...	...
Total	... 156,192	129,232	249,339	226,465

NOTES:—*A sum of Rs. 26,280 was also paid representing "War-bonus".

(a) *Revenue*.—Of the Rs. 95,524 received from the sale of cloves, Rs. 59,526 represents the amount received from cloves sold prior to June 30th : that is the cloves of the season 1919/1920.

The balance, Rs. 35,998 was received for the first portion of the 1920/1921 crop, sold before the 31st December, 1920.

The sum received was much lower than the estimate for two causes—the very small crop in the season 1919/1920 and the unusual lateness of the 1920/1921 crop.

As shown later on in this Report, only 15 days' light picking of the "Mwaka" crop occurred in September : and the "Mwule" crop, picking of which commenced in November, could not be put on the market owing to the difficulties of drying in the rainy season.

At the end of 1920, the Department had Rs. 60,000 of cloves belonging to that year unsold and which were sold in 1921.

The increase in revenue from coconuts is due to the Department's past policy of cleaning their plantations, planting up areas yearly and thus inspiring confidence in those who tender for the crop.

The decrease in miscellaneous revenue is due to over-estimate.

The Director of Agriculture placed the sum of Rs. 3,000 in his draft estimate.

The decrease in the rent of leased plantations is due to the case of Bet-el-mal plantation, proceedings for forfeiture having been instituted in February last : and the hearing of which case is still pending, owing to congestion in the Courts.

(b) *Expenditure*.—The saving in clove-harvest is due to the small harvest.

"Special Expenditure" includes the purchase of a number of articles (including a copra drier) which had been on order for some years: but the execution of which was delayed owing to the war. The amounts were not carried forward in the estimates.

The estimate for the proposed Grant-in-Aid to planters of clove-trees was not spent: as instructions were received to await a further communication on the subject from the Secretary of State.

The proposed Decree has now received approval: but has not yet been promulgated.

SECTION 2.—LEGAL.

(a.) PLANTATIONS PRESERVATION DECREE.

This deals with diseases, parasites and other pests: especially with the parasite on clove and other trees, "*Loranthus*"—sp.: and Bud-rot of coconuts.

8212 inspections were held in 1920. 57 prosecutions were instituted and 49 convictions obtained.

Land-owners are now recognising their responsibility in this matter.

From September onwards, the sub-inspectors devoted their whole time to clove-harvest work.

(b.) AGRICULTURAL PRODUCE DECREE.

Under this Decree certain Agricultural produce—cloves, copra and coconuts can only be moved along public ways when accompanied by a permit.

These permits are issued by two classes of persons:—

Public Book-holders—who are generally the village head-men.

Private Book-holders—the larger land-owners who issue permits for the conveyance of their own produce.

There are 162 public Book-holders and 161 private Book-holders appointed under the Decree.

Under this Decree also are issued Registers to dealers in cloves and copra outside the township of Zanzibar, in which is kept an account of all their dealings.

(c.) REGISTRATION OF MAINLANDERS.

This is carried out at present under the Defence Decree, and a check is kept on the movements of these people on whose work entirely depends the cultivation of plantations in this Protectorate.

A total of 6,099 mainlanders have been registered since the order came into force.

In 1920, 767 mainlanders were registered as arriving from the mainland, and 162 were registered as departing.

There is a fairly constant exodus and influx of these people: who, when they have saved Rs. 300 to Rs. 500, return for a while to their country. On arrival here they are registered, and drafted by the Director of Agriculture to districts where work is waiting for them. Contracts are entered into between them and Arabs under the supervision of the Director of Agriculture.

(d.) FIRES.

No legislation at present exists under which this constant source of damage can be controlled; and land-owners therefore yearly suffer heavy losses.

The only remedy at present lies in a civil action, as incendiarism is never the cause.

Civil actions are rarely brought as the offenders are the poorest class

Arabs do not report fires; but on the Government plantations 30 fires were recorded in 1920; and 3607 trees were affected.

Within the past few years, the two large Government plantations of Chuini and Bumbwi have been practically destroyed.

The question is intimately connected with the failure of Arabs to keep their properties properly cultivated, or to control the native cultivation of food crops on them.

SECTION 3.—LOANS.

Under Special Sanction a sum of Rs. 40,000 is granted yearly for loans to Pemba Arab and native clove-growers, to enable them to gather the first cloves without having to resort to an Indian money-lender.

The individual amounts advanced vary from Rs. 500 downwards to Rs. 25.

At the time of writing this Report the repayment of a large number of loans was not yet due.

No interest is paid on these loans which are intended as a means of especial assistance to Pemba clove-growers in view of the disabilities under which they suffer as compared with the Zanzibar Grower.

SECTION 4.—METEOROLOGY.

Rain recording stations have been opened at the Government plantations of Koani, Dunga, Selem and Kidiche.

Hyetograph self-recording gauges have been established at Koani in Zanzibar Island, and at Banani in Pemba.

A third hyetograph will be put down at Marseilles.

The records from Mafia have been discontinued: the administration of that island having been transferred to Tanganyika Territory.

Daily returns of temperature, with dry bulb and wet bulb readings, and of rainfall at all the ten stations are published monthly in the Official Gazette; but are not included here, owing to the Printing Office being unable to print them.

The Department is indebted to Drs. Charlesworth and Copland of Zanzibar and to Mr. Burt of the Friends' Industrial Mission in Pemba for the records from those two stations.

TABLE III.

Meteorological Observations, 1920.

Month	Temperature						Rainfall					
	Zanzibar Town			Pemba Banani			Zanzibar			Pemba		
	Means of		Absolute	Means of		Absolute	Town	Mko- kotoni	Chwaka	Banani	Weti	Kigo- mache
	Max.	Min.	Max.	Min.	Max.	Min.						
January	87·6	80·1	90·0	77·6	88·6	79·3	0·00	0·47	0·00	0·41	0·11	0·00
February	88·3	80·6	90·0	80·1	89·1	79·5	0·08	0·14	0·00	0·02	0·10	0·00
March	88·6	80·5	93·0	76·0	88·9	79·4	1·19	0·74	0·33	2·77	2·72	3·09
April	85·9	77·4	88·9	74·0	86·4	78·2	8·47	11·82	4·14	23·41	22·89	16·50
May	83·7	75·4	86·1	71·2	86·8	78·9	15·09	10·01	3·54	19·58	21·21	25·67
June	81·8	74·1	84·4	72·0	83·1	74·7	0·77	1·62	1·36	3·04	4·16	3·15
July	81·4	73·0	83·1	71·9	81·9	73·8	0·13	2·18	1·08	3·10	4·10	4·00
August	81·9	72·7	84·0	69·8	83·2	73·5	1·41	4·51	0·75	0·31	0·17	0·58
September	83·3	73·1	85·4	71·1	84·4	73·7	1·63	1·39	0·05	0·04	1·02	4·80
October	83·2	75·0	87·2	73·1	85·3	76·2	5·88	4·84	0·69	5·06	6·17	8·47
November	86·9	78·5	91·5	76·4	83·8	78·1	1·76	3·12	0·44	3·83	3·33	1·54
December	86·4	79·0	92·1	74·8	87·8	78·5	7·62	6·72	2·86	7·52	9·76	5·08
Total	84·1	76·6	93·0	69·8	85·8	77·0	44·03	47·56	15·24	69·09	75·74	72·88

TABLE IV.

Average Mean Temperature, Zanzibar.

Year.	Maximum	Minimum.
1909	84.9	75.9
1910	84.4	76.4
1911	84.3	76.3
1912	85.2	76.6
1913	84.9	76.4
1914	86.2	77.5
1915	85.7	77.1
1916	85.1	76.4
1917	84.5	76.2
1918	84.3	75.9
1919	85.5	77.0
1920	84.1	76.6
	84.9*	76.5*

*Average for 12 years 1909 to 1920.

SECTION 5.—COST OF LIVING.

The Director of Agriculture continued the work of the Supply Office, which he has carried on since 1914.

The cost of native living has a very important bearing on the profits and loss of the plantation industry.

Owing to the natives responding well to the admonition of the Government to plant native food crops wherever possible, there was no shortage of food at any time although the consumption of imported rice practically ceased.

The chief subject of interest in connection with this was the effect on this native cultivation of the action of the Indian Government in controlling the export of Burma rice, while prohibiting the export of rice from Bombay.

The price of the Burma rice for export was fixed at such a rate that it could not be sold here for less than Rs. 42 a bag; the pre-war price being Rs. 11 or Rs. 12 per bag.

The merchant who undertook to import the first quarter's allowance of 40,000 bags, was able to sell only some 7,000 or 8,000 bags at a profit and lost heavily.

The natives gave up rice consumption, and returned to their old food, the millets, which was their staple food 40 or 50 years ago. They also grew largely increased areas of cassava and sweet potatoes.

The Supply Office has through 1920 continued to control the price of native food-stuffs.

All Control was discontinued on the 31st December.

The Table shows that the cost of living in 1920 was still largely in excess of the pre-war rates; and also that the difference between 1919 and 1920 was not very great.

TABLE V.

Prices of Native Food-stuffs Pre-war and Post-war compared.

Article.	How sold.	Pre-war.	1919.	1920.	Percentage of increase over pre-war.	Percentage comparison between 1919 and 1920.
Rice (Meli)	...					+18
Flour	Per bag of 165 lbs...	13.00	27.94	33.00	153	-23
Wheat	" " 196 lbs...	18.00	41.50	32.00	77	-28
Beans	" " 180 lbs...	16.00	38.75	28.00	75	-15
Maize	" " 180 lbs...	16.00	21.25	18.00	12	+5
Millet	" " 180 lbs...	6.00	8.62	9.00	50	-12
Tea (Ceylon)	" " 180 lbs...	9.00	12.50	11.00	122	+24
Sweet potatoes	Per case of 60 1 lb. tins	63.00	106.75	107.00	70	-25
Onions	Per lb.	9 pice	16 pice	12 pice	33	-9
Milk	Per frasila of 35 lbs.	2.25	8.25	7.50	166	Nil
Cassava	Per 4 bottles of $\frac{1}{8}$ gallons each	1.00	1.15	1.15	15	Nil
Fish	Per basket of 100 lbs.	160 pice	300 pice	300 pice	87	Nil
Salt	Per lb.	24 pice	32 pice	32 pice	33	-33
Firewood	Per pizla of 600 lbs.	9.00	30.00	20.00	122	+17
Meat	Per ton	18.00	24.00	28.00	55	+50
	Per lb.	0.25	0.50	0.75	200	

PARAGRAPH 1.

SECTION 6.—COURSE OF CLOVE HARVEST.

The harvest was very exceptional in that the early indications were of a crop much below the average; and a forecast issued in March (as used to be the custom) would have been to that effect; and of a 2½ lakh frasila crop (3,906 tons).

In June the signs of budding were such that estimates of a late and record crop were freely made by growers and merchants even up to a seven to eight lakh of frasilas crop (10,937 to 12,500 tons).

The individual bunches however were small, and an estimate in July of 5½ lakhs of frasilas (8,593 tons) was as correct as local labour conditions permit. *

While it has been customary since 1907 for the harvest to commence in July—the South of Pemba and the Zanzibar crops usually ripening together first—in 1920, with the exception of 3 weeks light picking in September, there was practically no crop ready until November; and from November to February picking in both islands proceeded together.

The effect has been seen in the annual returns for the year.

Though picking was heavy in November and December, yet these months provide the light rains and drying was carried out with difficulty.

Not more than one quarter of the cloves picked on the Government plantations during these months could be dried and put on the market, and the remaining three-quarters owing to the prolonged drying period yielded a poor sample.

Of the total seasonal crop, 262,550 frasilas (4,103 tons) were delivered through the Customs up to the 31st of December.

Picking remained at its height in December and January, and the harvest operations were over by the middle of February, 1921.

The course of the harvest showed, first the difficulty of furnishing a reliable forecast in March or April, as formerly the Department was called on to do, and secondly the difficulty of stating with exactness when the harvest would be over.

In September the buds indicated that the harvest would be prolonged on to the month of March.

At the New Year it was clear that owing to rapid ripening a period of six weeks was sufficient.

* The actual crop for the season 1920/1921 received into the Customs to the end of April is frasilas 496,170 equal to 7,799 tons.

It is estimated that 55,000 frasilas remain unsold in merchants' hands.

PARAGRAPH 2.

LABOUR.

In tropical countries where the cultivation of native food crops is a simple matter, where the cultivation is (as here) often carried out by the women, and where the crops grow either on native reserves where there is no ground-rent, or on the lands of Arab land-owners who for certain reasons in connection with their prestige do not charge ground-rent—and where as a result a native need not work to live, as he has to in the temperate zones, in tropical climates the labour-question is always acute.

It is doubly acute in a Protectorate such as this; for the Government, while protecting the native against any system of labour recruiting which may pertain to the old conditions of slavery, has yet to bear in mind the promise of the British Government to the Arabs when the latter surrendered their slaves, that labour would be provided for the carrying on of the plantation industry; and that the labour would be provided under conditions equitable to Employer and Employed.

The labour policy recommended by this Department has always been based upon the Despatch of the 10th February, 1897: and upon the fact that the freed slaves represented nearly two-thirds of the whole population of the islands: and that they alone provided the labour for the plantation industry.

That despatch fully recognised that on the clove industry depended the solvency of the State, and the livelihood of the Arabs: and that “a blow struck at the Arabs would react disastrously upon the State.”

The view held by some is there quoted that the slaves on receiving their freedom would migrate into the town and live a life of beggary; and that the Arabs, even at that time heavily indebted to Indian money-lenders, would become bankrupt.

The less sanguine views referred to have unfortunately been only too truly fulfilled

The freed slave class has long ceased to be a factor of any importance in the Agricultural industry and we have had to look to mainland labour for cultivation: and to the aboriginal labour for the clove-harvest. Since the freeing of the slaves, an entirely new labour element has had to be introduced.

In cases where they have not migrated to the town, they live a life of vagrancy and indolency on the Arabs' plantations.

There is no system of tenure on these properties by which these people would live under agreement or on conditions.

The Arab tolerates and even invites their presence as a protection to his house against thieves—a foolish act of generosity only too often abused.

The despatch points out that any abandonment of work by the freed slaves on the plantations would be followed by consequences injurious to the public credit: and fully recognises that during the gathering of the clove crop special arrangements may have to be devised to prevent the disorganisation of what is the main source of revenue of the islands.

The Government's labour policy of later years has been adjusted to meet the extraordinary conditions consequent on the freeing of the slaves, and the difficulties of the Arab land-owning class arising therefrom.

Three policies now followed only need be mentioned here.

(a) The contract system, under which Arabs enter into contracts with the aboriginal inhabitants (now the only class available for harvest work) making an advance at the commencement of Ramathan when a native is in need of money and does not consider the terms of the contract by which he is binding himself.

Contracts grossly unfair to the labourer are made: and when the harvest commences breaches of contracts are on a wholesale scale.

Bad feeling is engendered between the two parties: the Courts are quite unable to deal with the cases, nor can in most cases the culprits be traced.

(b) I am convinced that this system must be discouraged and another substituted: and at present the main supply, which is obtained by the personal influence of the Administrative Officers and their Assistants, is distributed through the Director of Agriculture to those plantations where it is required.

This has not been entirely successful for various reasons; but it remains to be seen whether a better can be substituted. It ensures control over the treatment of the labour by the plantation-owner; and enables the Government to keep in touch with the most urgent requirements. It provides, in fact, the nearest approach to a Labour Bureau that is possible under present conditions; and the Department's Inspectors see that proper housing and cooking facilities are provided by the Arab before any labour is sent to him.

Plantation dispensaries are also available, to which cases of accident are at once sent for attention or for despatch to the central hospital.

There is no need to supervise the question of payment except in the very early stages of the harvest; as later the competition for labour results in such high rates being paid, as, in many cases, militate against subsequent profit.

This year on Government Plantations gathering began at 5 pice a pishi of green cloves (equal to Rs. 1-44 per frasila of 35 lbs. of dried cloves) and ended at 9 pice a pishi of green cloves (equal to Rs. 2-56 per frasila of 35 lbs. of dried cloves). Arabs commenced at 5 pice and rose to 15 pice (the either equal to Rs. 4-32 per frasila of 35 lbs. of dry cloves).

it is interesting to compare these figures with those prevailing in the "eighties". Picking then commenced at 3 pice and rose to 5. 4 pice may be regarded as the average of those days. 10 pice is the average on Arab plantations to-day—an increase of 150%.

In 1894 the average price of Zanzibar cloves was Rs. 4-75 (Pemba cloves in those days fetching the same price). In 1900—Rs. 6.60. To-day about Rs. 15, an increase of 127% over that of 1900.

But as I have said, everything depends on the personal influence of the Administrative Officers, who, if they are new, cannot be expected to exert as much as would otherwise be the case

(c) FREEDOM OF MOVEMENT.

This system has been for the first time followed in Pemba this year: and though it is difficult to form a definite opinion in its first year of trial, yet the results are far from satisfactory: and have resulted in heavy losses to land-owners and Government alike

Under this method labour is free to come and go as it pleases.

The system is wasteful, in that for want of organisation, much of the time and efforts of the workers are spent in perambulation of the districts and the harvest finally develops into a hue and cry after the highest wages.

The system appeals to the idealist; but totally ignores the practical requirements of the State industry.

The following table furnishes particulars of the distribution of labour from the Central Collecting Stations in Zanzibar Island.

Where the labour required by Arabs was not available, they collected as much as they could on their own initiative: but in many of these cases, a large proportion of their crop was lost.

Speaking generally a quarter of a large crop is lost for want of labour: and this year rather more than this proportion remained ungathered in Zanzibar and considerably more in the island of Pemba.

This question of loss is referred to later in the paragraphs dealing with the Government plantations.

TABLE VI.

Table of Labour Applications and its distribution
in Zanzibar island.

Name of Collecting Stations	Total number of requisitions for labour	Number of pickers asked for	Number allott- ed by the Director of Agriculture	Number sent by the Assis- tant District Commissioner	Total number of requisitions for which Assis- tant District Commissioner sent no labour	Amount paid out in food money by Government
						Rs. cts.
Selem ...	125	6323	2897	780	96	292 50
Mahonda ..	196	5521	2034	713	150	267 37
Koani ...	311	9993	5656	3815	77	1,430 62
Total ...	632	21837	10587	5308	323	1,990 49

The table shows that Arabs asked for 22,000 labourers.

It is their custom to ask for more than they require: and the Director of Agriculture allocates such labour as he considers the individual plantations require, taking into account the labour residents thereon.

Under careful drying 100 lbs. of green cloves should yield 48 lbs. of dry cloves: and assuming that in Zanzibar under ordinary conditions prevailing 44 pounds are yielded, then the 250,000 frasslas of dry cloves harvested in that island would be equivalent to roughly 5,000,000 pishi or 20,000,000 lbs. of green cloves.

The harvest period occupied altogether some 75 days: and assuming each person picked for 50 days—a not unreasonable assumption—and gathered daily 8 pishi (the maximum quantity gathered by one man on a Government plantation was 38 pishi: and for several days this man gathered over 25 pishi), some 12,000 people would have been engaged in the harvest in Zanzibar island: and taking 9 pice per pishi as the average rate, Rs. 700,000 was paid out in wages to the pickers.

In Pemba the methods of control are very bad and not more than 35 lbs. of dry cloves are obtained from 100 lbs of green (as delivered into the Customs): and the 300,000 frasslas, (1 frassla equal to 35 lbs.) approximate of the season's yield from that island would be obtained from 30,000,000 lbs. of green cloves (7,500,000 pishi).

Pickers in Pemba can gather more than in Zanzibar, owing to the heavier bearing of the trees and to the excessive branch-breaking: and the average daily pickers per head can be taken at 12 pishi or

48 lbs. The harvest period was the same as in Zanzibar: namely 75 days: and on the above basis some 12,500 pickers would be engaged.

The average price paid was, in my opinion, 10 pice slightly higher than in Zanzibar: and Rs. 1,100,000 were paid to pickers approximately.

The above figures do not represent the cost of harvesting as many other expenses have to be taken into account.

In 1920 not more than 1,500 Zanzibar men went to Pemba: 319 going up on Government steamers with free passes.

The Labour Decree was put into force in the case of 217 young men, all town residents, who had failed to register themselves as such with the District Commissioner, and who were found loitering in the neighbourhood of hotels and landing places as brothel touts or for similar purposes.

It should be noted here when examining the above estimate of labour employed in the Pemba crop, that in 1913, 16,000 Zanzibar pickers assisted in the Pemba harvest, 11,000 alone going up on Government steamers.

In 1918 Pemba gathered its own crop, as it did in 1907 (a previous large crop year) and it is now established that Pemba has sufficient labour, if organised, to gather its own crop.

As regards the organisation of labour in Pemba, the services of Mr. Roylance of the Public Works Department were, as in 1918, lent to this Department: and the Assistant Director of Agriculture and he supervised as far as possible the harvest, in co-operation with the District Commissioner and his Assistants.

There was an entire absence of any organisation or control of labour as is done in Zanzibar through the Collecting Stations of this Department: and there is therefore bound to be a considerable amount of waste owing to men wandering about looking for places where cloves were most plentiful.

The Assistant Director of Agriculture and Mr. Roylance estimated that one-third of the crop was lost in the Mkoani district, rather less in the Chake-Chake district, and rather more in the Weti district owing to want of labour. I consider these estimates conservative: both from the appearance of the trees before the harvest and after.

In 1920 the export figures of cloves from Pemba were as follows:—

Weti district	...	...	41,863	frassas.
Chake-Chake district...	...	...	30,311	frassas.
Mkoani district	...	...	42,774	frassas.

The season's (1920/1921) export figures up to the end of April are:—

Weti	...	...	...	1,03,658
Chake-Chake	...	...	...	72,717
Mkoani	...	...	...	1,07,987 2,84,362.

The 1918 and previous reports give the reports of exports from the various shipping places: but in later reports this Table was omitted by direction. It provided the only reliable guide to the question of the relative importance of road-routes.

As the question of roads is again under discussion, this Table is re-inserted.

TABLE VII.
Exports from Pemba Shipping Places, 1920.

Name	Port	Cloves			S ems			Copra			Chikichi			Co onufs		
		District	Fraslas	District	Fraslas	District	Total	Fraslas	District	Total	Fraslas	District	Total	Nuts	District	Total
Weti			31674	...	15162	...	...	48422	...	...	82	...	...	1499	...	...
Mtambwe		"	3304	...	1348	...	...	2776	...	...	...	...	...	...	...	...
Junguni		"	1010	...	296	...	...	2230	...	...	...	...	...	...	...	...
Mtangatwani		"	1001	...	443	...	...	5519	...	...	...	...	...	...	...	...
Msuka		"	4874	41863	345	17594	91641	32674	91641	82	...	...	...	...	1499	...
Chake-Chake		Chake-Chake	30311	30311	14043	14043	44235	44235	44235	...	...	...	...	...	...	...
Kisiwani		Mkoani	5499	...	1883	...	...	3165	...	...	...	...	...	...	...	...
Jambagombe		"	16433	...	6803	...	...	5210	...	...	...	...	...	...	...	...
Mkoani		"	2096	...	63	...	...	4124	...	...	...	...	...	...	...	...
Fufuni		"	6923	...	2930	...	...	17014	...	...	...	...	...	...	...	...
Kengeja		"	11823	42774	7511	19190	11140	11627	11140	...	...	...	...	...	...	...
Total				114948		50827	177016						82			1499

Mkoani once again shows itself to be the most important district in the two islands, and merits far more attention than it at present receives.

I placed Mr. Roylance there as soon as his services were available for Agricultural work.

The following figures illustrate the effect of any rise in cost of the various harvest works on the financial result.

At present it costs, at existing rates, on Government shambas Rs. 3-78 to harvest and to send to town a frasila of dry cloves of which—

Picking consumes	...	...	...	63.16%
Requisites	...	...	...	12.43%
Sundry drying labour, etc.	...	...	...	3.16%
Cartage	...	...	...	9.23%
Permanent staff (half wages, the other half being charged to Cultivation).	...	...	...	12.00%

and including the whole cost of running a plantation exclusive of interest or capital, it costs on the above plantations Rs. 6-23 to put on the market one frasila of dry cloves of which

Picking consumes	..	...	...	38.35%
Requisites for harvest...	...	...	...	7.54%
Sundry labour	...	...	...	1.92%
Cartage	...	...	...	5.60%
Staff	...	...	...	14.58%
Cultivation (3 weedings)	...	...	...	29.57%
Repairs to buildings	...	...	...	1.00%
Sundries	...	...	...	0.80%

The Clove-grower therefore, under the existing conditions, who produces 2,000 frasilas of dry cloves—a not unusual output for the larger owners—sends Rs. 3,115 on producing cloves which he hands over to the Government: in addition to Rs. 8,000 of cloves (at present prices).

PARAGRAPH 3.

BRANCH BREAKING.

I have had reports presented on this aspect, (peculiar to late years) of the harvest.

In the Mkoani district of Pemba the Report states that breakage was universal throughout the whole district: and that large branches cover the ground: in many cases an axe having been used for the purpose. The reporting officer adds that the whole district presents a disgraceful appearance.

In the Northern district of Pemba, the Report states that it is the practice to cut off large branches: and to actually pollard the trees.

The remonstrances of my officers—the only means at present available of dealing with the situation—were in vain.

In the central district, damage was less noticeable.

This question has been placed before the Government each year for many years past: and a Decree dealing with the subject has been approved by the Secretary of State: but has not yet been issued.

The subject is one of the greatest importance: and is inseparable from that of disease.

Wounds always present a possible source of fungoid infection: and this annual holocaust in the clove-plantations is having a most serious effect on the industry.

The causes of course lie in the comparative ease with which cloves can be picked from a branch lying on the ground to those gathered by the climber.

Hence labour can be obtained with greater ease on those plantations where branch breaking is regarded with complacency.

It is becoming increasingly common for the plantation-owner to avoid the present worries and anxieties of the harvest by leasing his crop to a carpet-bagger: and the lessee who has only the current year to think of encourages, in some cases orders his pickers to break the branches.

Any active opposition by the owner would result in his inability to lease in a subsequent year. He therefore does nothing.

Much of the damage done in Pemba is already irreparable: and delay in dealing with the situation adequately must have most serious results.

In Zanzibar, though much damage is done and the practice of leasing of his crop by the owner, is as common as in Pemba: yet the injury to the industry is not on such a large scale as in Pemba: chiefly because supervision is better and the pickers are of a better stamp than the Wapemba.

On Government plantations branch-breaking is prevented by a system of patrolling: and for that reason the Government plantations suffer much from want of labour.

TABLE VIII.

Course of harvest and deliveries compared with former years.

Months.	1915/16			1916/17		
	Zanzibar *fras.	Pemba fras.	Total fras.	Zanzibar fras.	Pemba fras.	Total fras.
July	2194	10832	13026	408	8963	9371
August	2688	5276	7964	3453	3539	6992
September	9518	35067	44585	15121	10130	25251
October	13097	85877	98974	20938	29335	50273
November	17054	143110	160164	37586	57477	95063
December	22381	143731	166112	45693	55391	101084
January	29875	177908	137783	38845	68290	107135
February	21494	60955	82449	11634	29859	41493
March	15766	38703	54469	18177	12577	30754
April	5556	9700	15256	9365	8196	17561
May	1461	7447	8908	4537	15230	19767
June	557	6510	7067	2959	3932	6891
Total	141641	655116	796757	208716	302919	511635

Months.	1917/18			1918/19		
	Zanzibar fras.	Pemba fras.	Total fras.	Zanzibar fras.	Pemba fras.	Total fras.
July	842	1074	1916	99	1748	1847
August	2054	2232	4286	12125	4225	16350
September	3108	14973	18081	21770	30401	52171
October	6778	54800	61578	33727	85030	118757
November	16897	50168	67065	39749	97879	137628
December	24917	27201	52118	26234	75650	100884
January	5858	28295	34153	39628	75663	115291
February	1538	25063	26601	33230	76330	109560
March	1161	15333	16494	20714	40540	61254
April	466	6480	6946	11007	34596	45603
May	285	5519	5804	16249	26878	43127
June	54	3101	3155	5741	16289	22030
Total	63958	234239	298197	259273	565229	824502

Months.	1919/20			1920/21		
	Zanzibar fras.	Pemba fras.	Total fras.	Zanzibar fras.	Pemba fras.	Total fras.
July	5170	13465	18635	982	9593	10575
August	8964	19763	28727	4598	1573	6171
September	4177	26221	30398	8898	4504	13402
October	8833	30565	39398	6461	9734	16195
November	7483	21042	28525	17994	26144	44138
December	12917	9834	22751	16972	25112	42084
January	24340	18319	42659	47061	70184	117245
February	11050	9468	20518	62006	83037	145043
March	4353	8208	12561	29383	26590	55973
April	3874	6895	10769	22493	22951	45344
May	2042	3868	5910	..	..	..
June	644	1055	1699	..	..	..
Total	93847	168703	262550	216848	279322	496170

In all the above tables the season is taken as commencing from 1st July and ending on the following 30th of June.

* One frasila equals 35 lbs.

TABLE IX.

Proportions between the seasonal yields of cloves and stems.

Season	For whole Protectorate.		
	Cloves Fras.	Stems Fras.	% of stems to cloves.
1904/1905	635,568	124,242	19½
1905/1906	308,950	78,248	25
1906/1907	266,512	48,307	18
1907/1908	755,634	153,562	20
1908/1909	614,630	121,156	19½
1909/1910	409,925	84,547	25
1910/1911	192,407	38,320	20
1911/1912	798,663	161,187	20
1912/1913	135,391	28,389	21
1913/1914	733,680	145,932	18½
1914/1915	526,309	64,179	12
1915/1916	796,757	89,630	11¼
1916/1917	511,635	69,153	13½
1917/1918	29,8197	42,951	14½
1918/1919	824,502	12,366	1½
1919/1920	262,551	107,405	41

Note :—There were large accumulations of unsold stems of previous harvests on all plantations, Government and private alike.

TABLE X.

Export of Cloves to different Continents from 1910* to 1920.
(in pounds weight.)

Continent	1910	1911	1912	1913	1914	1915
Europe	... 4800676	7844338	6067460	8789644	5707601	9270001
America	... 1096215	3510877	2576520	1975518	3499917	4494299
Asia	... 6758239	8706247	6539807	6772530	7657767	11525332
Africa	... 128019	199921	68157	275047	105123	135822
Total	... 12783149	20261383	15251944	17812739	16970408	25425454
<hr/>						
Continent	1916	1917	1918	1919	1920	
Europe	... 8386287	3601645	970526	6052446	3279430	
America	... 2185000	1818100	1604200	1494480	1022892	
Asia	... 9531900	10439928	8469272	12585822	4357579	
Africa	... 179629	1256317	5601453	1399357	151218	
Total	... 20282816	17115990	16645451	21532105	8811119	

* Figures for previous years are given in my 1910 Annual Report.

TABLE XI.

Seasonal Prices of Cloves and Stems.
Rupees per frasila of 35 lbs.

			Zanzibar.	Pemba.	Stems.
July	1919	...	...	20·91	0·75
August		...	24·09	22·45	1·71
September		...	23·00	21·79	1·85
October		...	26·93	24·56	2·09
November		...	32·72	30·41	3·70
December		...	33·15	31·43	3·75
January	1920	...	29·79	28·14	3·38
February		...	30·50	29·03	3·94
March		...	29·00	28·25	2·84
April		...	30·19	28·96	2·88
May		...	...	29·39	2·70
June		...	...	28·62	2·25
July		...	22·00	22·03	2·10
August		...	...	19·50	2·31
September		...	...	21·09	2·37
October		...	24·87	20·97	2·19
November		...	14·87	14·25	1·69
December		...	14·50	12·06	1·62
January	1921	...	...	11·37	1·44
February		...	...	12·85	1·43
March		...	15·11	13·95	1·95
April		...	15·86	14·84	2·32
May		...	...	...	...
June		...	...	...	...

TABLE XII.

Highest and Lowest prices of cloves and stems in Seasons 1919-20 and 1920-21.

Season.	Highest and Lowest.	Zanzibar cloves.		Pemba cloves.		Stems.	
		Month	Price	Month	Price	Month	Price
1919-1920	Maximum	November	Rs. 36.59	November	Rs. 37.06	November	Rs. 5.02
	Minimum	September	21.50	July	15.50	August	0.38
1920-1921	Maximum	October	24.67	September	23.00	August	2.62
	Minimum	November	12.00	November	10.50	January	1.12

TABLE XIII.

Comparative prices of cloves and stems in London and in Zanzibar (pence per lb.)

1920.

Month	London				Zanzibar		
	Penang	Amboyna	Madagascar	Zanzibar	Stems	Zanzibar	Pemba
January	37·50	31·00	28·50	28·50	6·00	13·56	12·80
February	37·50	31·00	28·50	30·00	5·00	13·94	13·27
March	37·50	31·00	28·50	31·00	4·50	13·26	12·77
April	37·50	30·00	28·50	27·00	4·25	13·73	13·24
May	36·00	27·00	27·00	24·00	4·00	...	13·88
June	35·00	27·00	25·00	20·50	3·00	...	13·06
July	29·00	22·00	16·00	15·00	2·25	10·06	10·07
August	29·00	22·00	17·00	17·00	2·50	...	8·91
September	27·00	22·00	19·00	19·00	2·25	...	9·64
October	26·00	22·00	19·50	19·00	2·50	11·37	9·59
November	26·00	21·00	16·00	17·00	2·25	6·80	6·51
December	26·00	20·00	15·00	16·00	2·00	6·63	5·51

PARAGRAPH 4.

CLOVE-INDUSTRY AND THE GROWERS.

The position of the industry and its Principals still has to engage the serious attention of the Government: and the Director of Agriculture is unable to report any improvement.

The causes of this condition have been fully explained in the Report of this Department for 1911: and since then various means of amelioration have been suggested.

Some of these have been embodied in two Decrees, which have received the approval of the Secretary of State, and await promulgation.

The greater the delay in introducing ameliorative measures, the more difficult will the task become, and also the more expensive.

In another part of this Report the cost of production has been discussed, and the percentage which the individual items bear to the whole: and in connection with this question of the profits of a clove-growing undertaking, I will here mention the items "Cultivation" and "Harvest Expenses" which consume respectively 29.5% and 48.8% of the whole cost of production.

The labour conditions obtaining at present are such that the labourers can dictate a rate far in advance of what is required for their living expenses: and which enables them to put aside monthly a sum equal to more than their half total earnings.

This rate is a direct contributory cause to the unsatisfactory condition of the Growers' finance.

In 1907 the Government on its Pemba plantations paid its weeders at the rate of 14 trees for Re. 1 equivalent to Rs. 7-14 an acre, which was 64 cents above the rate prevailing in Zanzibar.

Arabs in Pemba then paid at the rate of 10 trees, equivalent to Rs. 10 an acre. They now have to pay at the rate of Rs. 20 per acre.

An able-bodied mainlander with 7 to 8 hours work daily, earns now over Rs. 40 a month, which is undoubtedly far too heavy a burden for the plantations to bear.

Similarly with harvest expenses which consume 48.8% of the total cost of production, a picker—even old women were earning regularly on the Government plantations in 1920 Re 1 to Rs. 1½ a day: and willing able-bodied men and women over Rs. 2 daily: and these sums again are prohibitive of profit to a Grower who, in his management of his property provides for the future by laying down yearly his proper number of young trees.

Without some more stringent control the prices quoted above will rise: and the supply of both classes of labour will become more and more of an ephemeral character.

This question is not considered (as is so often misrepresented) from the point of view of private profits at the expense of native labour: but from the view of the necessity of the Government to secure the Arabs from losing their all, and to preserve an Industry on which the credit of the State depends.

SECTION 7.—COCONUT AND COPRA INDUSTRY.

In Pemba island the industry is stationary owing to want of means of communication, and to the lack of money.

Development is proceeding only on one estate.

In Zanzibar planting on a small scale proceeds regularly.

Much could be done in both islands were energy and capital available.

Many thousand acres of first class coconut land await development: and a considerable area of good land on the Government plantations themselves is occupied by bush.

The Government has nurseries in various centres both of cloves and coconuts.

No application are received for clove seedlings: but in 1920 6,500 coconut seedlings were distributed.

The demand did not come up to the supply: as 30,452 plants were in the nurseries, of which the Government planted on its own plantations 23,000.

The coconut presents an admirable field for investment: and it is a matter for regret that local conditions of land tenure and finance militate against full advantage being taken of the favourable conditions.

In 1920, 31,000 nuts were put down in the nurseries, for the 1921 distribution of plants.

TABLE XIV.

Monthly average prices of coconuts per 1000: and copra per frasila of 35 lbs.

Month	Coconuts		Copra	
	Rs. per 1000	Rs. per frasila	equal to £ per ton.*	
January	54·37	5·69	24· 5·4	
February	56·40	6·19	26· 8·0	
March	66·00	6·44	27· 9·4	
April	57·50	6·09	26· 0·0	
May	58·50	6·31	26·18·8	
June	48·13	4·90	20·18·8	
July	52·50	4·88	20·16·0	
August	55·00	5·22	22· 5·4	
September	55·00	5·22	22· 5·4	
October	57·50	5·75	24·10·8	
November	56·87	5·78	24·13·4	
December	52·50	5·19	22· 2·8	

at Rs. 15 to £ 1.

The minimum price of copra was Rs. 3-50 a frasila (equal to £14-8-8 per ton) the maximum Rs. 7-50 a frasila (equal to £32 per ton).

The quality of the copra is very bad: and the Government has purchased a "Chula" drier, which has not yet been erected.

TABLE XV.

Copra production in the Protectorate as shown by Imports from Pemba and Exports from Zanzibar.

Year.		Imported from Pemba into Zanzibar.	Exported from Zanzibar*	Imported from Foreign countries
		Tons.	Tons.	Tons.
1920	...	2628	8415	4154
Average of 5 years 1915 to 1919 inclusive	...	2297	7608	3570
Average of 5 years 1910 to 1914 inclusive	...	2628	7797	2488

*Customs Records do not show the amount of copra imported from Mafia and Tanganyika Territory which is re-exported: so this column does not give accurately the copra production of the Protectorate.

TABLE XVI.

Crop.	1920				Average 5 years period 1915-1919.				Average 5 years period 1910-1914.			
	Imports from Pemba.	Produce Exports from Zanzibar.	Imports from Foreign Countries.	Imports from Pemba.	Produce Exports from Zanzibar.	Imports from Foreign Countries.	Imports from Pemba.	Produce Exports from Zanzibar.	Imports from Foreign Countries.	Imports from Pemba.	Produce Exports from Zanzibar.	Imports from Foreign Countries.
Chillies	Nil	36	2	Nil	62	23	Nil	47	0.17			
Copra	2628	8500	1154	2297	7600	3570	2628	7797	2488			
Sim-sim	Nil	520	998	Nil	416	862	Nil	194	693			
Rubber	Nil	76	50	0.59	21	36	1	13	11			
Oil palm kernel	Nil	1514 (packages)	247	Nil	2307	825	Nil	3111 (packages)	83			
Soap (Local Manufacture)	Nil	18020	Nil	Nil	10189	...	Nil	Nil	Nil			

TABLE XVII.

Statement of imports (not re-exported) of Agricultural Produce and Stock for the past 10 years.

Article.	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Rice	...	3493959	4072084	3764600	2049415	2023066	2348933	1344238	3078027	1629565
Maize	...	25684	33010	32733	26457	32149	35565	66435	136240	36611
Sugar	...	549276	622302	635259	443563	496676	525067	504752	450948	779105
Timber	...	112821	125862	139221	90247	29976	36985	...	206879	157067
Cattle	...	199257	221387	177016	100695	139575	183250	138495	127814	126960
Sheep and Goats	...	163152	188694	122008	102289	129938	139725	143350	85199	115997
Horses	...	3447	2200	500	4855	...	700	...	3226	5075
Donkeys	...	11514	14002	15416	...	...	825	3455	300	1000
Camels	6700	600	4500
Mules
Tobacco	...	112802	160461	207205	109829	236234	181767	67854	89872	345254
										556295

SECTION 8.—GOVERNMENT PLANTATIONS.

There are in all 84 plantations managed by the Department of which 61 are in Zanzibar, and 20 in Pemba.

Three are leased for terms of years. Nothing is more unsatisfactory than leasing under the conditions obtaining here, owing to the impossibility of finding a tenant who will manage his holding with a view to the future: and to the almost insuperable difficulty of getting the local courts to agree that by the terms "Good husbandry according to the custom of the country" is not meant the bad system of husbandry universal amongst present day owners.

No leases then can be safely entered into until there is some clear and satisfactory definition accepted by the Courts of the expression "good husbandry".

The Government plantations were taken over from the Sultans owing to their inability to manage them when the slaves were freed.

The same difficulty operates against their sale now.

The greatest difficulties are encountered in managing these scattered estates as the management is subject to a complex code of rules and regulations which in many instances militate against economical working, and which were drawn up for Colonial Governments which had not large Agricultural Undertakings.

It is impossible to manage such to the best advantage under a system of annual estimates which make no provision for the many eventualities which cannot be foreseen: and under which all development expense is charged against maintenance.

Nevertheless these Government properties have, taken as a whole, increased largely in value during late years: and are capable, under a sound system of development in which maintenance expenses are assured for a term of years during the non-bearing period, of a much larger increase.

In 1920, the revenue has been very adversely affected by the light "Mwaka" clove crop, and the inability to put on the market the cloves gathered in November and December which constituted the early portion of the "Mvule" crop.

The "Mwaka" rain which occurs in November and December prevented drying of the cloves gathered.

One result will be that the 1921 Revenue will probably largely exceed the estimates.

The harvest policy on the Government plantations has been rather different to that in former years owing to the failure of the labour supply in the Northern district.

The less important plantations were left to their own local labour: and all the main outside supply was concentrated on large plantations like Selem and Marseilles, where there is efficient supervision.

The result as regards the whole has been fairly successful as the table of comparative crops will show.

A new policy also was instituted as regards price.

Hitherto the Department has been most careful to keep the price within reasonable limits: so as not to force the rate up unduly on Arabs' plantations.

It commenced prior to 1920 at 1 pice, rising to 5 and ending at 6 pice a pishi of green cloves.

This was found impossible in 1920 as owing to the shortness of labour, men would not have been procured.

Picking therefore commenced at 5 pice and rose to 9 pice: a very heavy increase on former years and under which a hard-working person could earn Rs. 3 or more per diem.

TABLE XVIII.

Plantations Residents picking and people from outside picking on Government plantations.

District.	Residents.	Out-siders.	Total.
Mwera and Chwaka ...	690	1605	2295
Mkokotoni ...	232	399	631
Total ...	...	...	2926

In labour discussions much is said as to the amount people pick.

The following table gives the results on Marseilles and Selem plantations.

64 pice equal to Re. 1.

1 pishi of green cloves equal to 4 lbs.

TABLE XIX.

Table showing rents on licensing coconuts from 1910.

Year.	Rent.
1910 ...	Rs. 21,941
1911 ...	41,195
1912 ...	52,443
1913 ...	68,248
1914 ...	93,120
1915 ...	75,606
1916 ...	71,404
1917 ...	93,335
1918 ...	126,776
1919 ...	126,169
1920 ...	149,936

In the season 1920/21 crop was equal to that of 1918/1919; and about 3,000 fraslas were lost for want of labour. This is in addition to the quantity which is always lost in a heavy crop year.

Of the above quantity over 700 fraslas were lost on one shamba alone, that of Fufuni, representing in value Rs. 11,200.

This heavy loss was partly due to the "freedom of movement" system of labour obtaining in Pemba; and partly due to the absence of proper management arising from the lack of housing for the staff and the want of store accommodation for the cloves.

In former years this fine plantation has yielded 3,000 fraslas of cloves in one season, at present prices representing Rs. 48,000; but in those years I have been able to have a proper clerical staff there as well as reliable overseeing.

There was also considerable loss at Marseilles from which men had to be drafted to other places which under ordinary conditions would have looked to Mkokotoni for their labour supply.

Drafts had also to be sent to Dunga to meet the blanks occasioned by the failure of the Dunga people to pick properly.

This shortness of labour and the unsatisfactory nature of the incidence of supply has resulted in a loss on these Government plantations of Rs. 50,000 in the past season.

Arabs are in a stronger position than a Government Department, because as soon as there appeared a likelihood of the Northern supply failing, they went directly to the Headman of the villages and obtained labour by payment to these officials, the wealthier owners getting the men; and undoubtedly in some cases Headmen connived at the withdrawal of their men from Government plantations on account of payments received from Arabs.

On the other hand it should be recorded that the District Commissioners and their Assisting Administrative Officers made every effort to encourage their people to come out; and the results from the two Southern districts of Zanzibar were all that could be hoped for. The Northern district has always been uncertain.

BUILDINGS.

The following buildings had been provided for in the Estimates and were to be erected by the Public Works Department.

- New house and store at Fufuni.
- New house and store and drying floor at Kidichi.
- New drying floor at Tundaua.
- Alterations and repairs to Tundaua house.
- New house and office at Selem for Superintendent.
- Arab pupils' quarters at Marseilles.

None of these were carried out with the exception of the Selem building; and the work of the Department has been much handicapped in consequence.

SECTION 9.—PUBLIC GARDENS.

(a) *Victoria Gardens*.—Provision is sufficient only for keeping the gardens weeded and the grass mown. But little can be done to introduce new plants.

(b) *Recreation Park*.—This is used as an open space for games by Indians and others.

(c) The revenue is partly derived from fees for use of the Hall in the Victoria Gardens by dramatic companies.

TABLE XXI.

Public Gardens Department, Revenue and Expenditure, 1920.

EXPENDITURE.			
Sub-head		Estimate Rs	Actual Rs
Personal Emoluments	...	3,264	3,225
Electric Lighting of Hall	...	250	137
Incidental Expenses	...	350	374
Maintenance of Recreation Park and Open Spaces	...	5,000	4,995
Mowing Machine 14"	...	300	17
Motor Mowing Machine	...	4,500	...
Total Rs....		13,664	8,748

REVENUE.	Rs.
From all sources	810

The great difference between the grants for cultivation in 1910 and 1920 need explanation; and the causes are:—

- Since 1910 the cost of cultivation has risen by 23%.
- It was customary to place many of the plantings under the charge of native local food-crop growers, who in return for being allowed to grow crops on the land, undertook to clean the young trees.

Under this system all the young trees died; now all young plantings are cultivated by the paid staff of the department, which is the only rational method of raising a plantation.

- (c) Since 1916, over 60,000 young trees have been put out, representing an area of 1,250 acres; and on which Rs. 25,000 is spent yearly on bringing to production stage.

(In 1920 a further sum of Rs. 4,000 had to be asked for to enable the cultivation to proceed but financial regulations prevented the grant; and the young planting had to be sacrificed. This is referred to in an earlier part of this Report in dealing with the question of development under a system of annual estimates).

- (d) In 1910 forty-one plantations were leased for terms of years, including some of the largest.

This decision to lease was necessitated by the sudden change of policy of the Government of that day. In 1908 organised development and cultivation according to the ordinary rules of husbandry was the accepted plan of management and the cultivation grant was Rs. 105,000.

In 1910 it was decided to economize, and the vote was reduced to Rs. 40,000. It was decided to sacrifice the new plantings, representing 200,000 young clove trees and 170,000 young coconuts and 41 plantations were leased to whoever would take them.

From 1911 onwards the Government has been engaged in forfeiture proceedings against its tenants, who without exception were allowing the properties to return to bush; and to-day only three of these old leases remain, in one of which proceedings for forfeiture have been pending for 5 years.

In 1920 the sum spent on cultivating the 39 plantations recovered under proceedings was Rs. 51,000.

- (e) Harvest wages have increased by over 100%; and the fact that this large increase is not reflected in the figures of expenditure is due to the better control of dishonesty by overseers under the system of payment by weight as compared with the former method of payment by measure.

F. C. McCLELLAN,
Director of Agriculture.

